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Total Number of Pages in This Submission

Application Number

09/430,644

Filing Date

October 29, 1999

First Named Inventor

Hurst, et al.

Art Unit

2613

Examiner Name

S. An

Attorney Docket Number

SAR/13543

ENCLOSURES (check all that apply)☒ Fee Transmittal Form☒ Fee Attached☐ Amendment / Reply☐ After Final☐ Affidavits/declaration(s)☐ Extension of Time Request☐ Express Abandonment Request☐ Information Disclosure Statement☐ Certified Copy of Priority Document(s)☐ Reply to Missing Parts/
Incomplete Application☐ Reply to Missing Parts
under 37 CFR1.52 or 1.53☐ Drawing(s)☐ Licensing-related Papers☐ Petition☐ Petition to Convert to a
Provisional Application☐ Power of Attorney, Revocation
Change of Correspondence Address☐ Terminal Disclaimer☐ Request for Refund☐ CD, Number of CD(s) _____☐ Landscape Table on CD☐ After Allowance Communication to TC☐ Appeal Communication to Board
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Moser, Patterson & Sheridan, LLP

Signature

Printed Name

Thomas Bethea, Jr.

Date

December 6, 2004

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FEE TRANSMITTAL
for FY 2005
Effective 10/01/2004. Patent fees are subject to annual revision.
☐ Applicant claims small entity status. See 37 CFR 1.27

Complete if Known

Application Number	09/430,644
Filing Date	October 29, 1999
First Named Inventor	Hurst, et al.
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Art Unit	2613
Attorney Docket No.	SAR/13543

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money ☐ Other ☐ None Order

☒ Deposit Account:

Deposit Account Number: 20-0782

Deposit Account Name: Moser, Patterson & Sheridan, LLP

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	790	2001	395	Utility filing fee	
1002	350	2002	175	Design filing fee	
1003	550	2003	275	Plant filing fee	
1004	790	2004	395	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$ 0)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims: 20 ** = 0 X Fee from below = 0

Independent Claims: 3 ** = 0 X Fee from below = 0

Multiple Dependent: X Fee from below = 0

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	
1201	88	2201	44	Independent claims in excess of 3	
1203	300	2203	150	Multiple dependent claim, if not paid	
1204	88	2204	44	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)					(\$ 0)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	2053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	430	2252	215	Extension for reply within second month	
1253	980	2253	490	Extension for reply within third month	
1254	1,530	2254	765	Extension for reply within fourth month	
1255	2,080	2255	1,040	Extension for reply within fifth month	
1401	340	2401	170	Notice of Appeal	
1402	340	2402	170	Filing a brief in support of an appeal	340
1403	300	2403	150	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,370	2453	685	Petition to revive - unintentional	
1501	1,370	2501	685	Utility issue fee (or reissue)	
1502	490	2502	245	Design issue fee	
1503	660	2503	330	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	
Other fee (specify) _____					
*Reduced by Basic Filing Fee Paid					
SUBTOTAL (3)					(\$ 340)

SUBMITTED BY

Name (Print/Type)	Thomas Bethea, Jr.	Registration No. (Attorney/Agent)	53,987	Telephone	(732) 530-9404
Signature				Date	December 6, 2004

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Real Party in Interest

The real party in interest is the Sarnoff Corporation.

Related Appeals and Interferences

Appellants assert that no other appeals or interferences are known to the Appellants, the Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-24 are pending in the application. Claims 1-24 were originally presented in the application. Claims 1-4, 6-12, 14-20, and 22-24 stand rejected in view of Hurst, Jr. (U.S. Patent No. 6,038,000, issued March 14, 2000) in view of Wee et al. (U.S. Patent No. 6,104,441, issued August 15, 2000) as discussed below. Claims 5, 13, and 21 were objected to by the Examiner. The rejection and objection of claims 1-24 is appealed. The pending claims are shown in the attached Appendix.

Status of Amendments

A first response was filed on May 31, 2001 to overcome a first Office Action dated March 1, 2001. In the first Office Action, the Examiner rejected claims 1, 2, 6, 9, 10, 14, 17, 18, and 22, under 35 U.S.C. § 102 and claims 3, 4, 7, 8, 11, 12, 15, 16, 19, 20, 23, and 24 under 35 U.S.C. § 103. The Examiner identified claims 5, 13, and 21 as containing allowable subject matter but depending upon a rejected base claim. In reply to the first Office Action, the Appellants filed a first response with arguments directed to traverse the Examiner's rejections. No changes were made to claims 1-24.

The Examiner responded to Appellants' May 31, 2001, first response in a second Office Action dated May 30, 2003. In the second Office Action, the Examiner maintained the rejection of the first Office Action. The Examiner again identified claims 5, 13, and 21 as containing allowable subject matter but depending from a rejected base claim.

A second response was filed on August 7, 2003 to overcome the second Office Action. The second response included arguments directed to traverse the Examiner's rejections in the second Office Action. No changes were made to claims 1-24.

The Examiner responded to Appellants' August 7, 2003 second response in an Advisory Action dated August 29, 2003. In the Advisory Action, the Examiner maintained the grounds of rejection.

A Notice of Appeal was filed in response to the Advisory Action, on September 3, 2003. Subsequent to the filing of the Notice of Appeal, a Brief on Appeal was filed on November 4, 2003.

The Examiner responded to Appellants' November 4, 2003 Brief on Appeal by withdrawing the Application from Appeal and issuing a third Office Action dated February 2, 2004. In the third Office Action, the Examiner asserted new grounds of rejection. The Examiner rejected claims 1-4, 6-12, 14-20, and 22-24 under 35 U.S.C. § 103.

A third response was filed on May 3, 2004 to overcome the third Office Action. No changes were made to claims 1-24.

The Examiner responded to Appellants' third response in a Final Office Action dated July 2, 2004. The Examiner maintained the rejection of the third Office Action.

A fourth response was filed on September 2, 2004 to overcome the Final Office Action. The fourth response included arguments directed to traverse the Examiner's rejections in the second Office Action. No changes were made to claims 1-24.

A Notice of Appeal was filed on October 4, 2004.

Summary of Claimed Subject Matter

The present invention generally relates to splicing MPEG and MPEG-like transport streams together.

Video content is usually made available as a sequence of image frames. For example, video content is often sent at 30 image frames per second. Each image frame can be converted to a bit-mapped digital representation. However, since the number of bits required to produce one bit-mapped image frame is rather large, a bit-mapped representation of an entire movie would be huge. Furthermore, sending such a bit-mapped movie from a source, such as a television studio, to a viewer would require an extensive memory, a large transmission bandwidth, and high-performance transmitters and receivers. Because of such issues, video content is usually digitally compressed using agreed upon algorithmic techniques to form more efficient digital representations than bit-maps.

Currently, digital representations of video content in accord with Moving Pictures Experts Group (MPEG) standard MPEG 2 are widely used. (See Appellants' Specification, page 1, lines 11-20) The MPEG 2 standard is based on the fact that there is usually little change in video content from one image frame to the next. Thus, after sending one complete image frame, the next image frame can be created by predicting the next image frame and sending only the changes from the previous image frame. The complete image frame is called an I-frame, while the predicted image frame is called a P-frame. A P-frame can be based on changes from either an earlier I-frame or an earlier P-frame. The group of image frames between one I-frame and the next is called a group of pictures (GOP). Additional efficiency is obtained by using a bidirectionally predicted coded frame based on both previous and subsequent frames. The bidirectionally predicted coded frame is called a B-frame and it can be based on a previous or subsequent I or P-frame. P-frames are more efficiently compressed than I-frames, while B-frames are more efficiently compressed than P-frames. Thus, a video sequence can be sent as a streamed sequence of GOPs that are each comprised of I,

P, and B-frames. That video sequence is referred to as a transport stream. (See Appellants' Specification, page 1, lines 21-24)

It is important for information providers such as television studios to be able to concatenate or splice transport streams together in a substantially seamless and frame accurate manner. "Frame accurate" means that splices occur precisely at selected frames, regardless of the frame types of the spliced frames (e.g., I, P, or B frames). "Seamless splice" implies that a splice results in a continuous, valid MPEG stream. A frame accurate, seamless splice is advantageous not only because it produces a smooth image but because it can preserve an exact number of frames. (See Appellants' Specification, page 1, lines 24-34) A commercial of 900 video frames can be smoothly spliced into a presentation to provide a commercial that is exactly 900 frames long, and then the presentation can smoothly start anew from where it stopped.

Because P and B-frames are predictive it is not possible to randomly splice one transport stream to another. For example, a B-frame might need a subsequent P or I frame for proper decompression. Without proper decompression a broken image and inaccurate frame counts can result. To prevent this, prior art splicing typically decompressed and decoded video streams to the image frame level, spliced, and then recoded and recompressed the spliced image. While effective, it is computationally difficult to do, particularly in real-time. Furthermore, since each splice was unique all splices required that all of the steps of decompressing, decoding, splicing, recoding, and recompressing be performed. (See Appellants' Specification, page 2, lines 1-5)

The present invention enables frame accurate, seamless splicing at the transport level using minimal decoding. An initial step is identifying a frame, either an in-frame or an out-frame within a transport stream. Additionally, splicing is performed in a manner that forms "adaptors" that enable any last frame from one transport stream to be spliced with any first frame of any other transport stream, (See Appellants' "Summary of the Invention," starting on page 2 of the Specification) An out-point adapter comprises an initial portion of a transition stream that terminates in a particular out-point condition. An in-point adapter comprises a remaining portion of the transition stream that begins with a corresponding particular in-point condition. The terminating condition of the out-point adapter and the initial condition of the in-point adapter are compatible such that any in-

point adapter may be concatenated to any corresponding out-point adapter to effect a splice. (See Appellants' Specification, page 3, lines 1-7) The present invention reduces the computational difficulty of splicing since decoding is only required around the identified frame and re-encoding is only required at the decoded portion so as to form an adapter.

Specifically, one important aspect of the present invention is forming splice point adaptors for out-frames (end frames to be spliced to in-frames) in a transport stream. Another important aspect of the present invention is a method of forming splice point adaptors for in-frames (beginning frames to be spliced to end-frames) in a transport stream. Another important aspect of the present invention is a method of forming splice point adaptors for both out-frames and in-frames of a transport stream (forming both an out-frame adaptor and an in-frame adaptor on a transport stream splice point). The principles of the present invention enable splice point adaptors to be formed on any type of frame by decoding only a relatively small portion of the transport stream. (See Appellants' "Summary of the Invention," starting on page 2 of the Specification)

For the convenience of the Board of Patent Appeals and Interferences, Appellants' independent claims 1, 9, and 17 are presented below in claim format with elements read on FIG. 3 of the drawings and appropriate citations to at least one portion of the specification for each element of the appealed claims.

Appellants' independent claim 1 recites a method for generating a splice point adapter. An initial step is identifying at least one out-frame. A portion of a transport stream including the out-frame is decoded. Each decoded portion of the transport stream is re-encoded to produce an out-point adapter, where each out-point adapter includes a predefined terminating out-point condition.

Claim 1 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

1. A method for generating a splice point adapter, comprising the steps of: identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream; (page 17, line 6 – page 18, line 20)

decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and (page 27, lines 3-8)
re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition. (page 27, lines 9-17)

Appellants' independent claim 9 recites a method for generating a splice point adapter. An initial step is identifying at least one in-frame. A portion of a transport stream including the in-frame is decoded. Each decoded portion of the transport stream is re-encoded to produce an in-point adapter, where each in-point adapter includes a predefined initial in-point condition.

Claim 9 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

9. A method for generating a splice point adapter, comprising the steps of:
identifying at least one in-frame within a transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream; (page 18, line 21 – page 19, line 20)
decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and (page 28, lines 3-8)
re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition. (page 28, lines 9-16)

Claim 17 recites the apparatus of Appellants' invention. In other words, claim 17 is the apparatus corresponding to the method of claim 1.

Claim 17 positively recites (with reference numerals, where applicable, and cites to at least one portion of the specification added):

17. In a system for processing transport streams, apparatus for generating a splice point adapter comprising:
a controller (120), for identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream; (page 17, line 6 – page 18, line 20)
a decoder (110), responsive to said controller, for decoding each identified out-frame, a respective portion of said transport stream including said out-frame; and (page 27, lines 3-8)

an encoder (110), for re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition. (page 27, lines 9-17)

Ground of Rejection to be Reviewed on Appeal

Claims 1-4, 6-12, 14-20, and 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hurst, Jr. (U.S. Patent No. 6,038,000, issued March 14, 2000) (Hurst) in view of Wee et al. (U.S. Patent No. 6,104,441, issued August 15, 2000) (Wee).

Claims 5, 13, and 21 stand objected to as being allowable but depending from a rejected base claim.

ARGUMENT

I. THE EXAMINER ERRED IN REJECTING CLAIMS 1-4, 6-12, 14-20, and 22-24 BECAUSE THE CITED REFERENCE FAILS TO TEACH, SHOW, OR SUGGEST A RE-ENCODING EACH DECODED PORTION OF A TRANSPORT STREAM TO PRODUCE A RESPECTIVE IN-POINT/OUT-POINT ADAPTER, WHERE EACH OF THE IN-POINT/OUT-POINT ADAPTERS INCLUDES A PREDEFINED TERMINATING IN-POINT/OUT-POINT CONDITION.

A. 35 U.S.C. § 103 - Claim 1.

The Examiner has rejected claims 1-4, 6-12, 14-20, and 22-24 in the Final Office Action as being unpatentable over Hurst, Jr. (US patent 6,038,000, issued on March 14, 2000) (Hurst) in view of Wee et al (US patent 6,104,441, issued on August 15, 2000) (Wee). The rejection is respectfully traversed.

Independent claim 1 recites identifying at least one out-frame within a transport stream, with that out-frame representing a last frame that is to be included in a spliced transport stream. Claim 1 further recites decoding a portion of the transport stream around the out-frame (including the out-frame) and then re-encoding the decoded portion to produce an out-point adapter having a predefined terminating out-point condition.

In the July 2, 2004 Final Office Action, the Examiner responded to Appellants' response filed May 3, 2004. In the Final Office Action, the Examiner conceded that Hurst, Jr. fails to disclose a decoder for decoding each identified (out/in) frame, a respective portion of the transport stream including the (out/in)-frame, and an encoder for re-encoding each decoded portion of the transport stream to produce a (out/in)-point adapter. The Examiner cites Wee et al (Wee) to cure this deficiency. In particular, the Examiner cites col. 11, lines 19-32 of Wee. This cite states the following:

While the preferred embodiment calls for frequency domain conversion of these frames to remove such dependencies, it would also be possible to entirely decompress as little as four entire frames only, and then perform three re-conversions to achieve the desired splicing. For example, prior to any cut, the

frames "PBB..." could be decoded to the image domain, and then recoded as "IPB..." frames, for example. Similarly, implementation of reverse-play could be effected by inverting B frame dependencies, converting P frames to the image domain, reordering these frames, and then reconverting these frames as P frames based upon the new temporal order of frames. All of these variations are viewed as within the spirit of the present invention.

In citing Wee, the Examiner states that Wee teaches decoding an identified out-frame, a portion of the video stream including the out-frame, and re-encoding each decoded portion of the stream for splicing purpose. The Appellants respectfully assert that the Examiner is incorrect.

Wee does not disclose "re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition." The Appellants describe "in-points" and "out-points" for each stream as being indicative of, respectively, appropriate transport stream entry and exit points. For example, a packet containing a video sequence header in an MPEG like video stream comprises an appropriate in-point. An MPEG like information stream that contains such in-points and out-points is said to be spliceable. In one embodiment of the Appellants' invention an "out-point splicing adapter" comprises, for example, an initial portion of a transition clip except that the out-point splicing adapter ends in a particular condition.

In the above passage referred to by the Examiner, Wee does not disclose out-point adapters. Wee also fails to disclose each out-point adapter including a predefined terminating out-point condition. Wee only describes identifying frames for playback in reverse order, decoding those frames, reversing the order of those frames, and recoding those frames. Wee does not operate on a transport stream. Thus, Wee cannot support decoding a transport stream around an out-frame, nor can Wee support forming a splice adaptor on an end of the transport stream. Indeed, Wee, as stated previously, does not form any adaptor at all, but rather teaches working with the dequantized and expanded image sequence to eliminate forward dependencies past the cut. (Wee, column 9, lines 33-55) Wee clearly fails to cure the Examiner's perceived deficiencies of Hurst.

Appellants submit that the Examiner has failed to show, in the cited references, the motivation to combine the cited references against Appellants' invention. Since the

Examiner has failed to cite this motivation, the Examiner is simply using impermissible hindsight.

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a prima facie case of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). See also In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The Examiner can satisfy this burden by showing that some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art suggests the claimed subject matter. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Appellants. Oetiker, 977 F.2d at 1445, 24 USPQ2d at 1444. See also Piasecki, 745 F.2d at 1472, 223 USPQ at 788.

Appellants submit that the Examiner has failed to establish a prima facie case of obviousness against Appellants' claims. The Examiner alleges that Hurst discloses a system/method for processing transport streams. As stated above, Wee cannot support decoding a transport stream around an out-frame, nor can Wee support forming a splice adaptor on an end of the transport stream. There is no teaching, disclosure, or suggestion in Wee of a transport stream. Thus, there is no suggestion to combine the cited references.

Appellants assert that Hurst in view of Wee fails to render obvious Appellants' claims. Appellants also assert that there is no motivation to combine Hurst and Wee. Therefore, Appellants submit that claim 1 is patentable over the teachings of Hurst and Wee.

B. 35 U.S.C. § 103 - Claims 2-4 and 6-8.

Claim 2

The Examiner has rejected claim 2 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 2 depends directly from claim 1 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 2 is also not

obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 2 specifically recites “identifying at least one in-frame within said transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream; decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition”. Namely, dependent claim 2 specifically recites the producing of an in-point adapter where each in-point adapter includes a predefined initial in-point condition. Due to the in-point adapter provided by Appellants’ invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 2.

As such, Appellants respectfully submit that claim 2 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 3

The Examiner has rejected claim 3 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 3 depends directly from claim 1 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 1 of Appellants’ invention, Appellants respectfully submit that dependent claim 3 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 3 specifically recites “associating each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point”. Namely, dependent claim 3 specifically recites the step of associating each out-point with a respective out-point

adapter, where a transport stream is concatenated to an additional transport stream. Due to the out-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 3.

As such, Appellants respectfully submit that claim 3 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 4

The Examiner has rejected claim 4 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 4 depends indirectly from claim 1 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 4 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 4 specifically recites "associating each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point". Namely, dependent claim 4 specifically recites the step of associating each in-point with a respective in-point adapter, where a transport stream is concatenated to an additional transport stream. Due to the in-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 4.

As such, Appellants respectfully submit that claim 4 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 6

The Examiner has rejected claim 6 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 6 depends directly from claim 1 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 6 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 6 specifically recites "wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of: decoding, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame". Namely, dependent claim 6 specifically recites the determination of the portion of the transport stream to be decoded. Due to the decoding provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 6.

As such, Appellants respectfully submit that claim 6 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 7

The Examiner has rejected claim 7 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 7 depends indirectly from claim 1 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 7 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 7 specifically recites "parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and determining, for each frame in said

transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS)". Namely, dependent claim 7 specifically recites indexing, where the indexing comprises parsing and determining steps. Due to the indexing accorded by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 7.

As such, Appellants respectfully submit that claim 7 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 8

The Examiner has rejected claim 8 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 8 depends indirectly from claim 1 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 1 of Appellants' invention, Appellants respectfully submit that dependent claim 8 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 8 specifically recites "wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream". Namely, dependent claim 8 specifically recites a meta file, where the determinations for each frame are stored and subsequently used in generating a transition stream. Due to the transition stream provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 8.

As such, Appellants respectfully submit that claim 8 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

C. 35 U.S.C. § 103 - Claim 9.

The Examiner claim 9 in the Final Office Action as being unpatentable over Hurst, Jr. (US patent 6,038,000, issued on March 14, 2000) (Hurst) in view of Wee et al (US patent 6,104,441, issued on August 15, 2000) (Wee). The rejection is respectfully traversed.

Independent claim 9 recites identifying at least one in-frame within a transport stream, with that in-frame representing a first frame that is to be included in a spliced transport stream. Claim 9 further recites decoding a portion of the transport stream around the in-frame (including the in-frame) and then re-encoding the decoded portion to produce an in-point adapter having a predefined initial in-point condition.

In the July 2, 2004 Final Office Action, the Examiner responded to Appellants' response filed May 3, 2004. In the Final Office Action, the Examiner conceded that Hurst, Jr. fails to disclose a decoder for decoding each identified (out/in) frame, a respective portion of the transport stream including the (out/in)-frame, and an encoder for re-encoding each decoded portion of the transport stream to produce a (out/in)-point adapter. The Examiner cites Wee et al (Wee) to cure this deficiency. In particular, the Examiner cites col. 11, lines 19-32 of Wee. This cite states the following:

While the preferred embodiment calls for frequency domain conversion of these frames to remove such dependencies, it would also be possible to entirely decompress as little as four entire frames only, and then perform three re-conversions to achieve the desired splicing. For example, prior to any cut, the frames "PBB..." could be decoded to the image domain, and then recoded as "IPB..." frames, for example. Similarly, implementation of reverse-play could be effected by inverting B frame dependencies, converting P frames to the image domain, reordering these frames, and then reconverting these frames as P frames based upon the new temporal order of frames. All of these variations are viewed as within the spirit of the present invention.

In citing Wee, the Examiner alleges that Wee teaches decoding an identified in-frame, a portion of the video stream including the in-frame, and re-encoding each decoded portion of the stream for splicing purpose. The Appellants respectfully assert that the Examiner is incorrect.

Wee does not disclose "re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including a predefined initial in-point condition." The Appellants describe "in-points" and "out-points" for each stream as being indicative of, respectively, appropriate transport stream

entry and exit points. For example, a packet containing a video sequence header in an MPEG like video stream comprises an appropriate in-point. An MPEG like information stream that contains such in-points and out-points is said to be spliceable. In one embodiment of the Appellants' invention an "out-point splicing adapter" comprises, for example, an initial portion of a transition clip except that the in-point splicing adapter begins in a particular condition.

In the above passage referred to by the Examiner, Wee does not disclose in-point adapters. Wee also fails to disclose each in-point adapter including a predefined initial in-point condition. Wee only describes identifying frames for playback in reverse order, decoding those frames, reversing the order of those frames, and recoding those frames. As stated in Section I. A., Wee does not operate on a transport stream. Thus, Wee cannot support decoding a transport stream around an in-frame, nor can Wee support forming a splice adaptor on an initial point of the transport stream. Indeed, Wee, as stated previously, does not form any adaptor at all, but rather teaches working with the dequantized and expanded image sequence to eliminate forward dependencies past the cut. (Wee, column 9, lines 33-55) Wee clearly fails to cure the Examiner's perceived deficiencies of Hurst.

Appellants submit that the Examiner has failed to show, in the cited references, the motivation to combine the cited references against Appellants' invention. Since the Examiner has failed to cite this motivation, the Examiner is simply using impermissible hindsight. Appellants' arguments in Section I. A. with respect to the Examiner's failure to establish a prima facie case of obviousness are herein incorporated.

Appellants assert that Hurst in view of Wee fails to render obvious Appellants' claims. Appellants also assert that there is no motivation to combine Hurst and Wee. Therefore, Appellants submit that claim 9 is patentable over the teachings of Hurst and Wee.

D. 35 U.S.C. § 103 - Claims 10-12 and 14-16.

Claim 10

The Examiner has rejected claim 10 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 10 depends directly from claim 9 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 9 of Appellants' invention, Appellants respectfully submit that dependent claim 10 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 10 specifically recites "identifying at least one out-frame within said transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream; decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition". Namely, dependent claim 10 specifically recites the producing of an out-point adapter where each out-point adapter includes a predefined terminating out-point condition. Due to the out-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 10.

As such, Appellants respectfully submit that claim 10 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 11

The Examiner has rejected claim 11 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 11 depends indirectly from claim 9 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 9 of Appellants' invention, Appellants respectfully submit that dependent claim 11 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 11 specifically recites "associating each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional

transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point". Namely, dependent claim 11 specifically recites the step of associating each out-point with a respective out-point adapter, where a transport stream is concatenated to an additional transport stream. Due to the out-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 11.

As such, Appellants respectfully submit that claim 11 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 12

The Examiner has rejected claim 12 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 12 depends directly from claim 9 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 9 of Appellants' invention, Appellants respectfully submit that dependent claim 12 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 12 specifically recites "associating each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point". Namely, dependent claim 12 specifically recites the step of associating each in-point with a respective in-point adapter, where a transport stream is concatenated to an additional transport stream. Due to the in-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 12.

As such, Appellants respectfully submit that claim 12 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 14

The Examiner has rejected claim 14 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 14 depends directly from claim 9 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 9 of Appellants' invention, Appellants respectfully submit that dependent claim 14 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 14 specifically recites "wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of: decoding, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame". Namely, dependent claim 14 specifically recites the determination of the portion of the transport stream to be decoded. Due to the decoding provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 14.

As such, Appellants respectfully submit that claim 14 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 15

The Examiner has rejected claim 15 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 15 depends directly from claim 9 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 9 of Appellants' invention, Appellants respectfully submit that dependent claim 15 is also not

obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 15 specifically recites “parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and determining, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS)”. Namely, dependent claim 15 specifically recites indexing, where the indexing comprises parsing and determining steps. Due to the indexing accorded by Appellants’ invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 15.

As such, Appellants respectfully submit that claim 15 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 16

The Examiner has rejected claim 16 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 16 depends indirectly from claim 9 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 9 of Appellants’ invention, Appellants respectfully submit that dependent claim 16 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 16 specifically recites “wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream”. Namely, dependent claim 16 specifically recites a meta file, where the determinations for each frame are stored and subsequently used in generating a transition stream. Due to the transition stream provided by Appellants’ invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 16.

As such, Appellants respectfully submit that claim 16 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

E. 35 U.S.C. § 103 - Claim 17.

Independent claim 17 is a system claim that recites limitations similar to those recited in independent claim 1. At least because Hurst and Wee fail to teach, suggest or make obvious Appellants' invention as recited in Appellants' independent claim 1, the Appellants respectfully submit that independent claim 17 is also not taught, suggested or made obvious by Hurst and Wee and is patentable for at least the reasons stated in Section I.A, above.

More specifically, claim 17 recites "a controller, for identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream; a decoder, responsive to said controller, for decoding each identified out-frame, a respective portion of said transport stream including said out-frame; and an encoder, for re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition." As such and for at least the same reasons provided in Section I.A. with respect to the Appellants' independent claim 1, the Appellants further submit that Hurst and Wee fail to teach, suggest or make obvious the invention of the Appellants at least with respect to independent claim 17, which recites similar relevant features as independent claim 1. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 17.

Therefore, the Appellants submit that claim 17, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

F. 35 U.S.C. § 103 - Claim 18-20 and 22-24.

Claim 18

The Examiner has rejected claim 18 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 18 depends directly from claim 17 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 17 of Appellants' invention, Appellants respectfully submit that dependent claim 18 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 18 specifically recites "said controller identifies at least one in-frame within said transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream; said decoder decodes, for each identified in-frame, a respective portion of said transport stream including said in-frame; and said encoded re-encodes each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition". Namely, dependent claim 18 specifically recites the producing of an in-point adapter where each in-point adapter includes a predefined initial in-point condition. Due to the in-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 18.

As such, Appellants respectfully submit that claim 18 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 19

The Examiner has rejected claim 19 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 19 depends directly from claim 17 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 17 of Appellants' invention, Appellants respectfully submit that dependent claim 19 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 19 specifically recites "said controller associates each out-point with a respective out-point adapter, wherein, in the case of a concatenating an

additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point". Namely, dependent claim 19 specifically recites the step of associating each out-point with a respective out-point adapter, where a transport stream is concatenated to an additional transport stream. Due to the out-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 19.

As such, Appellants respectfully submit that claim 19 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 20

The Examiner has rejected claim 20 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 20 depends indirectly from claim 17 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 17 of Appellants' invention, Appellants respectfully submit that dependent claim 20 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 20 specifically recites "said controller associates each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point". Namely, dependent claim 20 specifically recites the step of associating each in-point with a respective in-point adapter, where a transport stream is concatenated to an additional transport stream. Due to the in-point adapter provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 20.

As such, Appellants respectfully submit that claim 20 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 22

The Examiner has rejected claim 22 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 22 depends directly from claim 17 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 17 of Appellants' invention, Appellants respectfully submit that dependent claim 22 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 22 specifically recites "wherein said controller causes said decoder to decode, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame to provide said portion of transport stream including said in-frame to be decoded". Namely, dependent claim 22 specifically recites the determination of the portion of the transport stream to be decoded. Due to the decoding provided by Appellants' invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 22.

As such, Appellants respectfully submit that claim 22 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 23

The Examiner has rejected claim 23 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 23 depends indirectly from claim 17 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 17 of Appellants' invention, Appellants respectfully submit that dependent claim 23 is also not

obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 23 specifically recites “said controller parses a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and said controller determines, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, and presentation time stamp (PTS) and a decode time stamp (DTS)”. Namely, dependent claim 23 specifically recites indexing, where the indexing comprises parsing and determining steps. Due to the indexing accorded by Appellants’ invention, the computational difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 23.

As such, Appellants respectfully submit that claim 23 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

Claim 24

The Examiner has rejected claim 24 in the Final Office Action as being obvious over Hurst in view of Wee. The Appellants respectfully disagree.

First, dependent claim 24 depends indirectly from claim 17 and recites additional features therefor. Since Hurst in view of Wee fails to render obvious claim 17 of Appellants’ invention, Appellants respectfully submit that dependent claim 24 is also not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

Second, dependent claim 24 specifically recites “a memory, for storing within a meta file said controller determinations for each frame in said transport stream, said meta file intended for subsequent use in generating a transition stream”. Namely, dependent claim 24 specifically recites a meta file, where the determinations for each frame are stored in a memory and subsequently used in generating a transition stream. Due to the transition stream provided by Appellants’ invention, the computational

difficulty of splicing is reduced. Therefore, Appellants submit that the cited references fail to disclose, teach or suggest what is recited in claim 24.

As such, Appellants respectfully submit that claim 24 is not obvious in view of the teachings of Hurst in view of Wee and, as such, fully satisfies the requirements of 35 U.S.C. § 103.

G. Objection to Claims 5, 13, and 21

Objection of Claim 5

The Examiner objected to claim 5 for being dependent upon a rejected base claim. The rejection is respectfully traversed.

First, Appellants respectfully submit that the arguments made with respect to the patentability of claim 1 above are also applicable with respect to the patentability of claim 5. Specifically, claim 5 further recites a plurality of parameters that are not disclosed or suggested by the cited references.

Second, the Examiner has conceded that claim 5 contains allowable subject matter. It is respectfully submitted that Appellants do not believe that claim 5 depends from a rejected base claim.

In view of the foregoing remarks, the Appellants submit that dependent claim 5 fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder. However in the event that the Board upholds the rejection of claim 1, Appellants reserve the right to amend claim 5 into allowable form by incorporating the limitations of claim 1.

Objection of Claim 13

The Examiner objected to claim 13 for being dependent upon a rejected base claim. The rejection is respectfully traversed.

First, Appellants respectfully submit that the arguments made with respect to the patentability of claim 9 and claim 10 above are also applicable with respect to the patentability of claim 13. Specifically, claim 13 further recites a plurality of parameters that are not disclosed or suggested by the cited references.

Second, the Examiner has conceded that claim 13 contains allowable subject matter. It is respectfully submitted that Appellants do not believe that claim 13 depends from a rejected base claim.

In view of the foregoing remarks, the Appellants submit that dependent claim 13 fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder. However in the event that the Board upholds the rejection of claim 9, Appellants reserve the right to amend claim 13 into allowable form by incorporating the limitations of claim 9.

Objection of Claim 21

The Examiner objected to claim 21 for being dependent upon a rejected base claim. The rejection is respectfully traversed.

First, Appellants respectfully submit that the arguments made with respect to the patentability of claim 17 above are also applicable with respect to the patentability of claim 21. Specifically, claim 21 further recites a plurality of parameters that are not disclosed or suggested by the cited references.

Second, the Examiner has conceded that claim 21 contains allowable subject matter. It is respectfully submitted that Appellants do not believe that claim 21 depends from a rejected base claim.

In view of the foregoing remarks, the Appellants submit that dependent claim 21 fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder. However in the event that the Board upholds the rejection of claim 17, Appellants reserve the right to amend claim 21 into allowable form by incorporating the limitations of claim 17.


Conclusion

Thus, the Appellants submit that none of the claims presently in the application are obvious under the provisions of 35 U.S.C. § 102. Consequently, the Appellants believe all these claims are presently in condition for allowance.

For the reasons advanced above, Appellants respectfully urge that the rejections of claims 1-38 as being obvious under 35 U.S.C. §102 are improper. Reversal of the rejections of the Final Office Action is respectfully requested.

Respectfully submitted,

12/6/04
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CLAIMS APPENDIX

1. (Original) A method for generating a splice point adapter, comprising the steps of:

identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;

decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and

re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.

2. (Original) The method of claim 1, further comprising the steps of:

identifying at least one in-frame within said transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream;

decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and

re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition.

3. (Original) The method of claim 1, further comprising the step of:

associating each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.

4. (Original) The method of claim 2, further comprising the step of:

associating each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point.

5. (Original) The method of claim 1, wherein said decoded portion of said transport stream including said out-frame comprises said out-frame and all preceding frames, in display order, from said out-frame to a prior I-frame;

in the case of said out-frame comprising a B-frame, defining the frame immediately preceding said prior I-frame in transmission order as a final first transport stream frame in said transition stream; and

in the case of said out-frame not comprising a B-frame, defining said out-frame as said final first transport stream frame in said transition stream.

6. (Original) The method of claim 1, wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of:

decoding, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame.

7. (Original) The method of claim 2, further comprising the step of indexing each of said transport stream, said step of indexing comprising the steps of:

parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and

determining, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS).

8. (Original) The method of claim 7, wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream.

9. (Original) A method for generating a splice point adapter, comprising the steps of:

identifying at least one in-frame within a transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream;

decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and

re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition.

10. (Original) The method of claim 9, further comprising the steps of:

identifying at least one out-frame within said transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;

decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and

re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.

11. (Original) The method of claim 10, further comprising the step of:

associating each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.

12. (Original) The method of claim 9, further comprising the step of:

associating each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point.

13. (Original) The method of claim 10, wherein said decoded portion of said transport stream including said out-frame comprises said out-frame and all preceding frames, in display order, from said out-frame to a prior I-frame;

in the case of said out-frame comprising a B-frame, defining the frame immediately preceding said prior I-frame in transmission order as a final first transport stream frame in said transition stream; and

in the case of said out-frame not comprising a B-frame, defining said out-frame as said final first transport stream frame in said transition stream.

14. (Original) The method of claim 9, wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of:

decoding, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame.

15. (Original) The method of claim 9, further comprising the step of indexing each of said transport stream, said step of indexing comprising the steps of:

parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and

determining, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS).

16. (Original) The method of claim 15, wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream.

17. (Original) In a system for processing transport streams, apparatus for generating a splice point adapter comprising:

- a controller, for identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;

- a decoder, responsive to said controller, for decoding each identified out-frame, a respective portion of said transport stream including said out-frame; and

- an encoder, for re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.

18. (Original) The apparatus of claim 17, wherein:

- said controller identifies at least one in-frame within said transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream;

- said decoder decodes, for each identified in-frame, a respective portion of said transport stream including said in-frame; and

- said encoder re-encodes each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including a predefined initial in-point condition.

19. (Original) The apparatus of claim 17, wherein:

- said controller associates each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.

20. (Original) The apparatus of claim 18, wherein:

said controller associates each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point.

21. (Original) The apparatus of claim 17, wherein said decoded portion of said transport stream including said out-frame comprises said out-frame and all preceding frames, in display order, from said out-frame to a prior I-frame;

in the case of said out-frame comprising a B-frame, said controller defines the frame immediately preceding said prior I-frame in transmission order as a final first transport stream frame in said transition stream; and

in the case of said out-frame not comprising a B-frame, said controller defines said out-frame as said final first transport stream frame in said transition stream.

22. (Original) The apparatus of claim 17, wherein said controller causes said decoder to decode, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame to provide said portion of transport stream including said in-frame to be decoded.

23. (Original) The apparatus of claim 18, wherein:

said controller parses a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and

said controller determines, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, and

presentation time stamp (PTS) and a decode time stamp (DTS).

24. (Original) The apparatus of claim 23, further comprising:

a memory, for storing within a meta file said controller determinations for each frame in said transport stream, said meta file intended for subsequent use in generating a transition stream.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None